

KANALIELLA GEN. N., A NEW GENUS OF CLERIDAE FROM THE MELANESIAN REGION (COLEOPTERA: CLERIDAE: CLERINAE)

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Abstract

Kanaliella dregei (Perroud, 1864), comb. n. and *Kanaliella triangularis* (Perroud, 1864), comb. n., from the Melanesian territories of New Caledonia and Vanuatu, are transferred from *Eunatalis* Schenkling, 1909 to the new genus *Kanaliella* Gerstmeier, gen. n. and lectotypes designated. Colour photographs, figures of genitalia and distribution maps are provided.

Introduction

Schenkling (1909) erected *Eunatalis* Schenkling for Australian clerid species formerly included in the South American genus *Natalis* Laporte. Kolibáč (1998) synonymised *Metademius* Schenkling, *Eunatalis* Schenkling and *Cormodes* Pascoe with *Natalis*, although Solervicens (2007) disputed this and reinstated *Metademius* and *Eunatalis* as valid genera without commenting on the status of *Cormodes*. In his cladogram, Solervicens (2007) showed the relationships between the South American genera *Eurymetomorphon* Pic, *Neogyponyx* Schenkling and *Natalis* with the Australian genera *Metademius* and *Eunatalis*. Further assessment of these genera is required in order to clarify their taxonomic status.

When revising *Eunatalis* (Gerstmeier and Seitner in press), it became evident that a new genus was required for the Melanesian species *Eunatalis dregei* (Perroud) and *Eunatalis triangularis* (Perroud). *Kanaliella* Gerstmeier gen. n. is herein established, based on differences of elytral punctation/striation, anterior mesoventral process, protibiae and hindwing venation (see genus diagnosis below).

Material and methods

This study is based on 37 specimens from 8 museums and institutional collections. Lectotypes are designated in order to fix the taxonomic identities of the species involved. Museum acronyms and curators are as follows:

BMNH – Natural History Museum, London, UK (Beulah Garner, Max Barclay); HNHM – Hungarian Natural History Museum, Budapest, Hungary (Otto Merkl); IAC – Institut Agronomique néo-Calédonien, La Foa, New Caledonia (Christian Mille); ISNB – Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium (Pol Limbourg); MNHN – Muséum National d'Histoire Naturelle, Paris, France (Thierry Deuve, Antoine Mantilleri); RGCM – Roland Gerstmeier Collection, Munich (deposited in the collection of the Technical University Munich); SDEI – Senckenberg Entomologisches Institut, Müncheberg, Germany (Lutz Behne); QMB – Queensland Museum, Brisbane, Australia (Susan Wright).

From all examined specimens the label data were transcribed and presented at the beginning of each species description. The depository of the specimen is given in parentheses.

The taxonomic changes herein are based only on morphological studies, including preparations of the male genitalia, the pygidium and the sixth ventrite. For this purpose the specimens were heated in distilled water and the genitalia removed with fine forceps through small incisions made along the sides of the terminal abdominal segments. Aedeagi were cleaned of soft tissue in 10% KOH, cleared in 70% ethyl alcohol and submerged in glycerine, then stored in genitalia vials pinned below each specimen.

Measurements were made under a stereo microscope using an ocular micrometer. Total body length is the distance measured from the apical clypeal margin to the elytral apices. Elytral length was measured alongside the elytral suture and pronotal length was taken from the dorsal middle line. Pronotal width was measured at the broadest extreme. Measurements of the elytral width were made across the middle. The scale bar is 1 mm (except as noted otherwise).

Habitus photographs of adult beetles were taken using a DFC 490 digital camera fitted to a Leica Z6 stereo microscope, then composited with Leica LAS 3.8 automontage software.

Plot points of distribution maps were made with QuantumGIS (1.8.0) and are based on locality data sourced from specimen labels. These data included exact locality information based on longitude/latitude coordinates. Red labels were applied to newly designated lectotypes and paralectotypes.

***Kanaliella* Gerstmeier, gen. n.**

Type species: *Natalis dregei* Perroud, 1864.

Diagnosis. In *Kanaliella* gen. n. the elytral punctuation in the basal part (up to middle) is arranged into ten striae (in *Eunatalis* the 9th stria is represented by distinct punctuation near the apex in some species only), the punctuation is without nodules (*Eunatalis* with two or three nodules), the anterior mesoventral process is lacking the central excavated area (in *Eunatalis* slightly open), the distal margin of the broadly dilated pro-intercoxal process is thick and bulging (not bulging in *Eunatalis*), the protibial spine (short apical apophysis) is absent (*Eunatalis* with spine), the hind wings are missing the MP3+4 (*Eunatalis* with short MP3+4), and the apical field is about one-third of the elytra (in *Eunatalis* less than one-third).

Head: Labrum broadly emarginate, V-shaped; terminal maxillary palpomeres with sides parallel to very weakly divergent and apex obliquely truncate, terminal labial palpomeres securiform; eyes coarsely faceted, protruding laterally, margined, strongly ovate; interocular space about 2-2.5 eye widths (as viewed from above); head including eyes as broad as or broader than

anterior width of pronotum; gular sutures converging, gular process conspicuous, with two papillae. Epistomal suture distinct. Antennae with 11 antennomeres, filiform; antennomeres with dense, fine punctation, terminal three antennomeres densely tomentose, forming a loose club.

Thorax: Pronotum longer than wide, sides more or less sinuate, with wrinkles, middle with an elongated groove (sometimes missing or weak); sub-basal collar distinct, grooves of sub-basal collar fused or separated by an indistinct bar. Pro-intercoxal process narrow, broadly dilated distally, distal margin thick and bulging (Fig. 1); procoxal cavities posteriorly closed; anterior mesoventral process distinct, sinuate, closed apically (Fig. 2); metaventrite with a conspicuous discriminial line. Metendosternite with conspicuous furcal arms; laminae acute, triangular (Fig. 3).

Elytra: Elytral base not margined, lateral margins parallel or broadest behind middle, apices broadly rounded, elytral punctation arranged into ten striae, interstices with a conspicuous microsculpture (wrinkled); punctation without nodules. Hind wing with closed wedge cell, margin of radial cell strongly sclerotized, MP3, MP4, AA3+4 and CuA+AA reaching margin, MP3+4 and RP2 absent (Fig. 4).

Legs: Inner edge of protibiae and sometimes mesotibiae with a row of short, thick bristles, with more or less conspicuous punctation and fine wrinkles; profemora conspicuously swollen, protibiae slightly bent, mesotibiae slightly bent or straight, metatibiae straight, all tibiae without longitudinal carinae, protibiae terminating in a single spur (without a spine), tibial spur formula 1-2-2; tarsal pulvillar formula 3-3-3, tarsal pulvilli broadly lobed, lobes not emarginate; claws simple.

Abdomen: Six abdominal ventrites.

Etymology. The name *Kanaliella* refers to Kanala, the New Caledonian type locality of the two species.

Redescription of the species

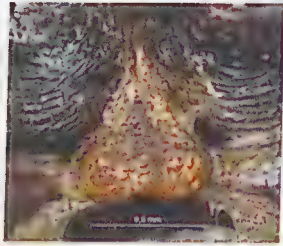
Kanaliella dregei (Perroud, 1864), comb. n.

(Figs 5, 7, 9)

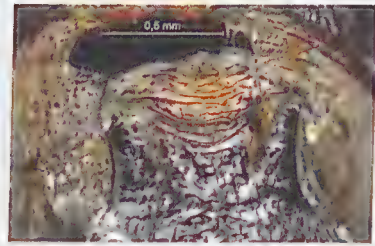
Natalis dregei Perroud, 1864: 108; Fauvel 1904: 144.

Type material examined. Lectotype ♂ (designated here): NEW CALEDONIA. *dregei* Perroud, Kanala, nov. cal.; ex coll. Perroud; type (MNHN). Paralectotype (designated here): Coll. R. I. Sc. N. B., Nouvelle Calédonie, Kanala, Février rec. Montrouzier, ex coll. Fauvel; Coll. A. Fauvel *Natalis triangularis* Perr. 1864; Syntype (ISNB).

Additional specimens. NEW CALEDONIA: 2 ex., Nova Caled. (MNHN). Bourail (MNHN). Nov. Caledon. Fairmaire; *Natalis dregei* Perr.; *Eunatalis dregei* Perroud, 1985 Ginter Ekis det. (MNHN). Noumea, N. Caledonie; *Natalis dregei* Perr.; desire (MNHN). La Foa (MNHN). Yahoué; *dregei* Perroud (RGCM). Nouvelle Calédonie (RGCM). New Caledonia, Maré, sifted, 25.v.-6.viii.1987, leg. János Balogh (RCGM).



1



2



3



4



5



6

Figs 1-6. *Kanaliella* gen. n. (1) pro-intercoxal process (Scale bar 0.5 mm); (2) anterior mesoventral process (Scale bar 0.5 mm); (3) metendosternite (Scale bar 1 mm); (4) wing venation (Scale bar 5 mm); (5) habitus *K. dregei*; (6) habitus *K. triangularis* Lectotype.

2 ex. New Caledonia, Maré, *Araucaria* forest, beaten, 25.v.-6.viii.1987, leg. János Balogh (HNHM). Nouvelle-Calédonie, Farino/Barbou L. Face à la scierie Alt. 305 m; Collecte sur: *Codiaeum peltatum* abattu Le 22/03/05 Par S. Cazères & C. Mille (IAC). Nouvelle-Calédonie, Farino/Barbou L. Ensemble de la propriété; Collecte sur: Divers par battage Le 22/03/05 Par S. Cazères & C. Mille (IAC). Nouvelle-Calédonie, Sarraméa, Col d'Amieu; Collecte sur: Divers Le 21 et 23/11/05 Cazères & Nugues (IAC). Sarramea: N-Caledonie, Reserve du Col d'Amieu le 17/03/07 par T. Salesne. Amp. Vap. Mercure (IAC). VANUATU: Brazier; New Heb; Schenkling det; Brit.Mus. 1907; *Eunatalis dregei*, Ginter Ekis det. 1995; Col-02942 (SDEI). 46302; Brazier; New Heb; Fry Coll. 1905-100; *Natalis dregei* Montr.; *Natalis dregei* Montr. S. Schenkling det. (BMNH).

Description. Length: 10-13.7 mm (19 specimens measured). Head: Black with isolated pilosity, dense punctation and wrinkles and a more or less conspicuous longitudinal fovea between the eyes; eyes separated by about 2.1-2.5 eye widths.

Thorax: Pronotum black with light brown to black pilosity; sides rounded then divergent before the anterior margin, widest behind middle, constricted basally; surface with large and small punctation, wrinkles on basal laterally and dorsally and around central longitudinal fovea; grooves of sub-basal collar fused, flattened; pronotal length to width ratio 1.06-1.15:1. Scutellum triangular, dark brown to black with isolated pilosity and dense punctation. Thoracic ventrites black with isolated pilosity; anterior mesoventral process lacking deeply sculptured process; mesoventrite finely wrinkled; posterior part of mesepisternum with isolated punctation.

Elytra: Elytral length to width ratio 2.35-2.45:1; elytra dark brown to black, with isolated pilosity, with a sharply S- to Z-shaped fascia in the middle of most specimens which spans from the suture to the lateral margin and is often broken before the lateral margin, the fascia formed of thick golden setae; elytral base slightly broader than pronotum, sides broadening towards apex; punctation very large, deep and irregularly-shaped (sub-aereolate) to apical two-fifths internally and apical quarter externally; apical area smooth in part with irregular, shallow, elongate impressions; punctation conspicuously wider than interstices, becoming flattened and slightly decreasing towards apex; punctation of ninth and tenth striae conspicuous towards apex; interstices with fine wrinkles, not ridged.

Legs: Black with short dense pilosity, dense punctation and fine wrinkles; protibiae slightly bent, mesotibiae straight.

Abdomen: Abdominal ventrites brown to black, some specimens with a yellowish-coloured posterior margin; tegmen opened ventrally, phallic tip Z-shaped (in side view), with a hook-like structure; length of phallobase in relation to whole tegmen about 50%, lateral sclerotization of phallobase distinct, but not strong, apical lateral sclerotization of parameres weak, V-shaped branches of ventral sclerotization distinct; spicular fork fused less

than one-fifth its length; sixth ventrite long, slightly and broadly emarginated; pygidium compact, straight, processes short, stout (Fig. 7).

Distribution. New Caledonia (including Isle of Pines and Mare, after Fauvel 1904) and Vanuatu (Fig. 9).

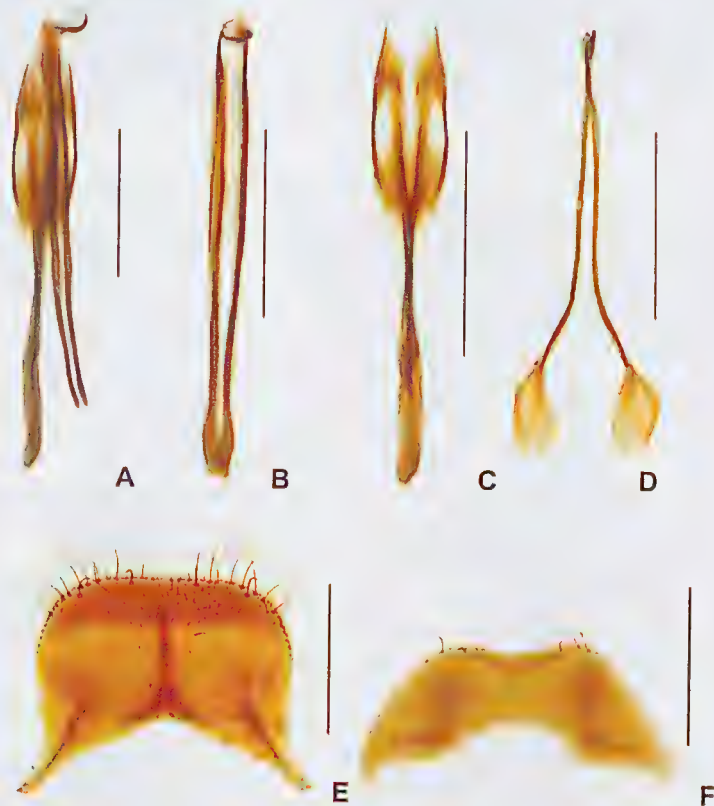


Fig. 7. *Kanaliella dregei*. (A) aedeagus ventral; (B) phallus ventral; (C) tegmen ventral; (D) spicular fork; (E) pygidium; (F) sixth ventrite (Scale bar 1 mm).

***Kanaliella triangularis* (Perroud, 1864), comb. n.**

(Figs 6, 8, 10)

Natalis triangularis Perroud, 1864: 104; Fauvel 1904: 144.

Type material examined. Lectotype ♀ (designated here), NEW CALEDONIA: *triangularis* Perroud, Kanala, N. Caled.; ex coll. Perroud; type (MNHN). Paralectotype (designated here): Coll. R. I. Sc. N. B., Nouvelle Calédonie, Kanala, Janvier rec. Montrouzier, ex coll. Fauvel; det. Perroud 1864, *Natalis triangularis* Perr., ex coll. A. Fauvel; Syntype (ISNB).

Additional specimens. NEW CALEDONIA: Coll. R. I. Sc. N. B., Nouvelle Calédonie, Ile des Pins, rec. Deplanche, ex coll. Fauvel; coll. et det. A. Fauvel, *Natalis triangularis* Perr. R.I.Sc.N.B. 17.479 (ISNB). New Caledonia 12263, 21°34'S x 165°50'E Col d'Amieu, N waterfall 26Apr2005, GB Monteith beating, 270 m; *Eunatalis triangularis* (Perroud, 1864) Det. JS Bartlett, 2005 (QMB). 1 ♂, 1 ♀, Nouvelle-Calédonie, Farino/M. Barbou, Lat. S 21.61431 Long. E 165.70065 Alt. 408 m; Collecte sur: *S. gabriellae* Le 27/8/04 Par battage du piège Par S. Cazères (IAC). 2 ex. Nouvelle-Calédonie, Farino 3/Barbou L. Lat. S 21.63084 Long. E 165.70576 Alt. 315 m; Collecte sur: *S. gabriellae* Ralia Le 27/10/04 Par S. Cazères (IAC). 2 ♂♂, Nouvelle-Calédonie, Farino 7/Barbou L. Lat. S 21.63266 Long. E 165.70684 Alt. 263 m; Collecte sur: *S. gabriellae* Ralia Le 27/10/04 Par S. Cazères (IAC). 2 ex. Nouvelle-Calédonie, Farino/M. Barbou L. Lat. S 21.63084 Long. E 165.70576 Alt. 314 m; Collecte sur: *Schefflera gabriellae* Le 27/5/04 Par S. Cazères (IAC). 1 ♀, Nouvelle-Calédonie, Farino/M. Barbou L. Lat. S 21.63084 Long. E 165.70576 Alt. 314 m; Collecte sur: *Schefflera gabriellae* Le 09/6/04 Par S. Cazères (IAC). Nouvelle-Calédonie, Farino/M. Barbou L. Lat. S 21.63266 Long. E 165.70684 Alt. 263 m; Collecte sur: *Schefflera gabriellae* Le 16/7/04 Par S. Cazères (IAC). Nouvelle-Calédonie, Farino/M. Barbou, Lat. S 21.61431 Long. E 165.70065 Alt. 408 m; Collecte sur: *S. gabriellae* Le 09/9/04 Par battage du piège Par S. Cazères (IAC). 1 ♂, Nouvelle-Calédonie, Farino/Barbou sur *S. gabriellae* 23/06/04 S. Cazères coll. (IAC). Nouvelle-Calédonie, Poya/Beaupré, chez M. Dalstain 26/04/2007 S/C & J/P Coll. Battage B/cutting 4, S 21°28.634' E 165°11.237, Alt 12 (IAC). Nouvelle-Calédonie, SRFP 28 'Perroquet' Lat S 21.73393 Long. E 165.89605, alt. 23 m; Collecte sur: *Ficus* sp. 'Figuier' Piège par battage Le 05/01/05 Par S. Cazères (IAC).

Description. Length: 8.5-11.7 mm (18 specimens measured). Head: Black with light brown pilosity; with very dense large punctation and dense wrinkles; frons deeply sunken and bordered posteriorly by a triangular formation of golden setae, in the centre of the frons are further tuft-like formations of golden setae; eyes separated by about 2.1-2.33 eye widths.

Thorax: Pronotum dark reddish brown with dense light brown pilosity; conspicuously constricted behind apex and at base, widest behind middle; dense punctation and fine wrinkles; dorsal longitudinal fovea distinct; pronotum with four gibbosities; grooves of sub-basal collar separated by an indistinct bar; pronotal length to width ratio 1.12-1.22:1; scutellum triangular to circular, black with dense pilosity and punctation; thoracic ventrites light brown to dark brown with isolated whitish pilosity and isolated punctation; anterior mesoventral process not deepened.

Elytra: Elytral length to width ratio 2.59-2.69:1; elytra light brown to dark brown in basal half, in apical part yellow to light brown, with dense yellowish pilosity; elytra parallel to sub-parallel, elytral base slightly broader than pronotum; punctation irregular, punctation in basal half distinct and deep, becoming smaller towards apex, apical half with isolated punctation, diameter of punctures wider than interstices, punctation of ninth and tenth striae conspicuous towards apex; interstices with distinct microsculpture (wrinkles), interstices 3 and 5 ridged in basal half.

Legs: Brown to black-brown with dense, light brown pilosity, dense punctation and wrinkles; pro- and mesotibiae slightly bent.

Abdomen: Abdominal ventrites brown to black with a yellowish-coloured posterior margin; tegmen opened ventrally; phallic tip not Z-shaped; length of phallobase in relation to whole tegmen about 50%, lateral sclerotization of phallobase distinct, but not very strong, apical lateral sclerotization of parameres very weak, V-shaped branches of ventral sclerotization distinct, but not very strong; spicular fork fused less than one-fifth its length; sixth ventrite long more or less straight; pygidium compact, rounded, processes stout (Fig. 8).

Distribution. New Caledonia (including Isle of Pines and Lifou, after Fauvel 1904; Fig. 10).

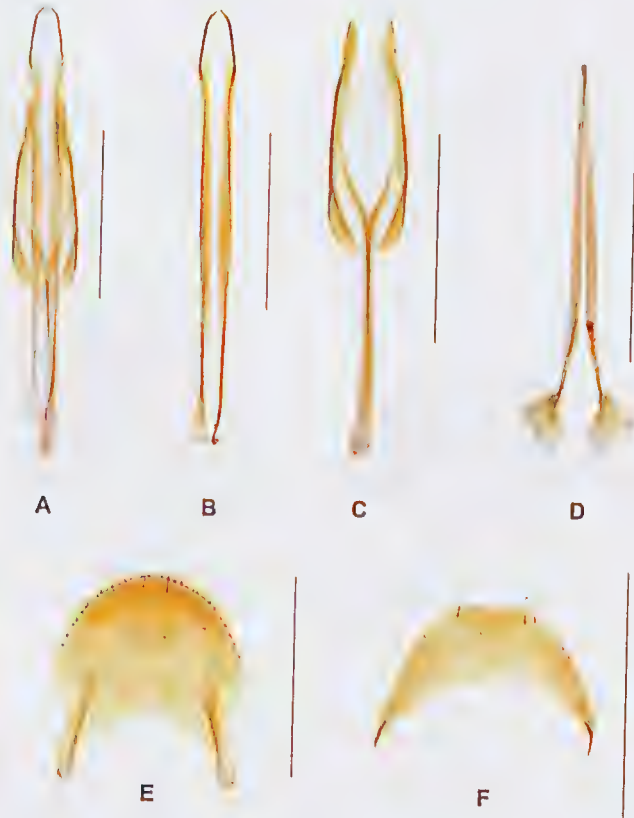


Fig. 8. *Kanaliella triangularis*. (A) aedeagus ventral; (B) phallus ventral; (C) tegmen ventral; (D) spicular fork; (E) pygidium; (F) sixth ventrite (Scale bar 1 mm).

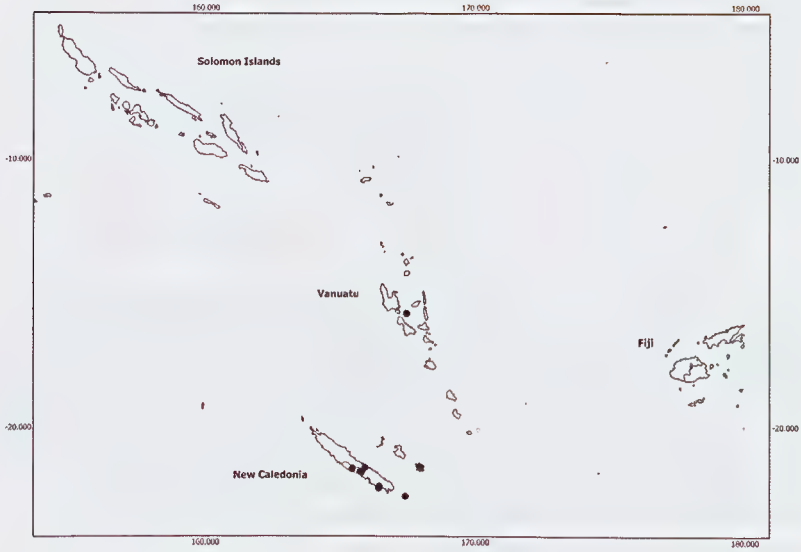


Fig. 9. Distribution map of *Kanaliella dregei*.

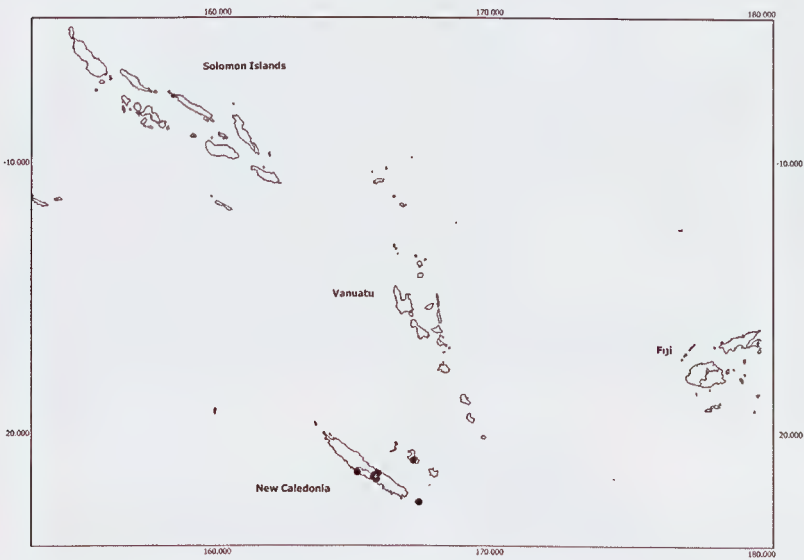


Fig. 10. Distribution map of *Kanaliella triangularis*.

Differential diagnosis

Kanaliella dregei is unmistakable by the slightly curved fascia of the elytra (which is densely vested with golden-yellow setae), the longitudinal fovea between the eyes, the longitudinal punctation behind the middle of elytra, fused grooves of the pronotal sub-basal collar and the straight mesotibiae.

Kanaliella triangularis has typical coloration and pilosity of the elytra, the pronotum is much longer than broad, the grooves of the pronotal sub-basal collar are separated by an indistinct bar and the mesotibiae are slightly bent.

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References

- FAUVEL, A. 1904. Faune analytique des coléoptères de la Nouvelle-Calédonie. *Revue d'Entomologie* **23**: 113-207.
- GERSTMEIER, R. and SEITNER, M. 2013. Revision of the checkered beetle genus *Eunatalis* Schenkling, 1909 (Coleoptera: Cleridae, Clerinae). *Zootaxa*, in press.
- KOLIBÁČ, J. 1998. Notes on the classification of *Natalis* Laporte de Castelnau and *Notocymatodera* Schenkling, with a description of *Notocymatodera disjuncta* sp. n. (Coleoptera: Cleridae). *Acta Musei Moraviae, Scientiae biologicae* **82**(1997): 191-198.
- PERROUD, B.-P. 1864. Essai sur la faune entomologique de Kanala (Nouvelle-Calédonie) et description de quelques espèces nouvelles et peu connues. *Annales de la Société Linnéenne de Lyon (n.s.)* **11**: 46-256.
- SCHENKLING, S. 1909. Aus den Sitzungen. *Deutsche Entomologische Zeitschrift* **1909**: 162-163.
- SOLERVICENS, J.A. 2007. Cladistic analysis of species of *Natalis* Laporte (1836) and related genera *Eunatalis* Schenkling (1909), *Metademius* Schenkling (1899) and *Eurymetomorphon* Pic (1950) (Coleoptera: Cleridae: Clerinae) with redescription of a restored Clerinae genus. *Zootaxa* **1398**: 1-14.

